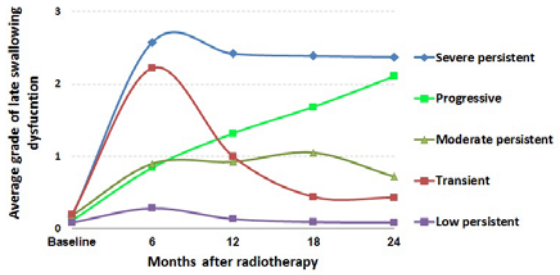
Transient problems mainly occurred after high dose to the laryngeal and lower pharyngeal regions, combined with moderate dose to the upper pharyngeal region. The progressive pattern was mainly seen after moderate dose to the upper pharyngeal region.

Figure 1: Patterns of swallowing dysfunction



Conclusions: After definitive RT or CRT, five different patterns of swallowing dysfunction can be identified over time. This could reflect different underlying radiobiological mechanisms of radiation-induced damage and recovery. These results may improve identifying patients who are at the highest risk for developing severe persistent swallowing problems and who may benefit most from different preventive measures, such as swallowing sparing IMRT.

PO-0649

Total mucosal irradiation for head and neck cancer of unknown primary: a combined analysis of 2 prospective studies

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Purpose/Objective: Head and neck carcinoma of unknown primary (HNCUP) metastatic to cervical lymph nodes (LNs) constitutes about 2% of all head and neck carcinomas. There is no consensus on a standard radiotherapy clinical target volume (CTV) (ipsilateral neck only vs bilateral neck and mucosal tube) or dose to the CTV (50-70Gy). The aim of this combined analysis was to assess the safety and feasibility of total mucosal and bilateral neck intensity modulated radiotherapy (TM-IMRT).

Materials and Methods: We performed a combined analysis of 2 single arm, phase 2 prospective trials (CCR2823 and CCR3301). All patients (pts) had PET-CT or CT staging, pan-endoscopy and tonsillectomy or biopsy to exclude an occult primary. Patients with stage T0, N1-3, M0 (AJCC TNM 2002) disease were treated using a 5- to 7-field IMRT technique. CTV1 was the ipsilateral level 1b-5 and retropharyngeal (RP) LNs. CTV2 was the mucosa of nasopharynx, oropharynx, larynx, hypopharynx and contralateral cervical level 2 to 5 and RP LNs. Prescribed doses to PTV1 and PTV2 in 30 fractions were 60-65 Gy (depending on resection status R0 – 60Gy, R1/R2 – 65 Gy) and 54 Gy, respectively. No prophylactic enteric feeding tubes were inserted.

Results: Thirty-six pts (53% male) with HNCUP, median age of 54.2 years (range 43-86.9 years), were treated between July 2007 and December 2012. Histology was squamous cell carcinoma (SCC) in 35 pts or undifferentiated carcinoma nasopharyngeal type in 1 pt. Twenty-five (69%) pts were p16-positive (surrogate for HPV) and 18 (50%) pts had a ≥10 pack year smoking history. Eighteen (50%) pts received chemoradiotherapy with concomitant platinum and 18 (50%)pts radiotherapy (RT) alone. The median treatment time was 41 days (range 39-46 days). All pts received the prescribed dose with no clinically significant delays. The 2 year locoregional control rate was 89.8% (95% CI, 78.4-100). The 2 year primary mucosal and local nodal control rates were 97.1% (95% CI, 91.4-100) and 89.8% (95% CI, 78.4-100) respectively. One mucosal primary (oropharynx) was detected 7.3 months (m) after RT and 2 patients died from recurrent metastatic SCC at 5.7m and 16.4m after RT. Twelve pts (33%) had acute (<3m after RT) grade 3 (LENT-SOMA) dysphagia. The 1 year enteric tube feeding rate was 1 of 36 (2.7%) pts. Rates of high grade, subjective xerostomia (LENT-SOMA, ≥grade 2) at 12m and 24m after RT were 17% and 15% respectively.

Conclusions: At a median follow up of 33.5 months the use of TM-IMRT treating the total mucosal tube to an elective radiation dose of 54 Gy was associated with good local control rates. Toxicity is improved compared to previously reported TM-IMRT regimens encompassing similar mucosal volumes.

PO-0650

Dynamics of tumor hypoxia in serial 18F-Misonidazole PET for SCCHN during chemoradiation and correlation to outcome

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Purpose/Objective: Tumor hypoxia is a common feature of locally advanced head and neck cancer (HNSCC) that is associated with higher malignancy and increased radioresistance. The resolution of tumor hypoxia during fractionated radiation treatment is assumed to be pivotal for treatment success. 18F-fluoromisonidazole PET (F-MISO PET) allows noninvasive assessment of hypoxia during treatment. The purpose of the present study was to noninvasively assess the time course of tumor hypoxia and its correlation with additional imaging modalities and outcome.

Materials and Methods: A prospective serial imaging study was conducted in patients undergoing definitive radiochemotherapy (RCTx, total dose 70Gy) for locally advanced HNSCC, accompanied by Cisplatin in weeks 1, 4 and 7. Tumor hypoxia was assessed by F-MISO-PET by static scans acquired 2.5 h p.i. Tumor volumes were determined for FDG PET scans and the coregistered F-MISO scans. At baseline MRI, FDG-PET and 1st F-MISO were acquired. Additional F-MISO scans were acquired in treatment weeks 2 and 5 (F-MISO2, 3). Endpoints were standardized uptake values (SUV) for PET scans, response on MRI scans (complete reponse (CR), partial